REMARKS

Mostly, certain expressions have been amended for better representation of the invention and typing errors have been corrected.

The relationship formula of claim 1 has been included in a new claim 9.

In claim 2, the wording has been made more accurate in stating that the polymer layer is formed by spin coating from a polymer solution; the same in claims 5 and 7.

Claim 10, which has been added, defines that the application of solvent according to the method of claim 3 occurs for only 5 - 10 seconds (See page 7, lines 26 - 27).

Respectfully submitted,

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The specification has been amended the as follows:

Page 1, third paragraph;

Conventional methods for determining the molecular weight of polymers have the disadvantage that they are relatively complex and very slow and furthermore inaccurate and unreliable so that they cannot be integrated into a production process for on-line monitoring and control of a polymerization plant. The molecular weight has been determined up to now for example by osmometry, light [diffusion] scattering, gel permeation chromatography etc.

Page 2, last paragraph extending to page 3:

In accordance with an advantageous embodiment of the method according to the invention, the thin polymer layer is produced by a spin coating procedure. Basically, any procedure can be used for producing the thin polymer layer as long as [it is capable of producing a sufficiently thin polymer layer] the layer thickness depends on the molecular weight of the polymer. The spin coating procedure however has the advantage over other procedures that thin polymer layers can be produced thereby in a simple and highly accurately reproducible manner and in a very short time. In combination with the ellipsometric method for determining the thickness of the polymer layer produced by the spin coating procedure, the molecular weight of the polymer can be determined rapidly by the use of spin coating.

Page 4, second full paragraph:

In order to prevent the evaporating solvent from depositing on the [lenses] optical parts (lenses) of the ellipsometer during operation of the apparatus, that is,

during the procedure in which the thin polymer layer is formed, the lenses can be covered so that they remain undisturbed for the subsequent ellipsometric examinations.

Page 6, first equation:

$$[\text{Layer thickness } d \sim [\eta]^{1/3}]$$

$$\underline{\text{Layer thickness } d \sim [\eta]^{1/3}}$$

Page 6, line 30,

[η] = [boundary] intrinsic viscosity number

Page 7, first paragraph

The constants K and a depend on the polymer [or, respectively,] and the used solvent. The parameters K and a are provided in tables for almost any polymer-solvent system. They are given in the "Polymer Handbook Brandrup Immegut". From the existing data banks, or respectively, the polymer handbook the respective parameters are available. A solvent can be selected, which provides a maximum value for the exponent a. This results in a maximum dependency of the layer thickness 14 on the molecular weight and accordingly the sensitivity of the process.

The claims have been amended as follows:

1. A method for determining the molecular weight of polymers comprising the steps of: preparing a thin layer of the polymer whose molecular weight is to be determined, determining the thickness of said layer by an ellipsometric method ~~and calculating, with the thickness determined by~~ said ellipsometric method, the molecular weight of the

polymer material [using the relationship] from a layer thickness - molecular weight correlation.

$$[\text{ Layer thickness } d \sim [\eta]^{1/3}$$

$$\text{and } [\eta] = KM^{a} \quad \text{(Staudinger equation)}$$

wherein,

$[\eta]$ = boundary viscosity number
K = constant [volume/mass]
A = constant, and
M = molecular weight]

2. A method according to claim 1, wherein said thin polymer layer is prepared from a polymer solution on a substrate by a [spin-coat] spin-coating process, wherein the substrate is rotated.

5. An apparatus for determining the molecular weight of polymers comprising a support structure supporting a substrate, an arrangement for providing on said substrate a thin layer of a solution of the polymer whose molecular weight is to be determined, and an ellipsometer disposed above said substrate for determining the thickness of said thin polymer layer disposed on said substrate.

6. An apparatus according to claim 5, wherein said ellipsometer has [lenses] optical parts (lenses) provided with covers for protecting said lenses.

7. An apparatus according to claim 5, wherein said arrangement for providing said thin polymer layer includes

means for supplying said polymer to said substrate and said substrate is supported by a support structure, which is rotatable about a vertical axis and which is rotated to subject the polymer solution supplied to said substrate to centrifugal forces for spreading said polymer solution on said substrate to form said thin polymer layer.